

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

What is Claimed is:

1. (original) A system for creating a patterned polarization compensator comprising:
 - (a) a retardance characterization system for optically scanning the spatially variant retardance of a spatial light modulator; and
 - (b) a compensator patterning system for writing a spatially variant photo-alignment pattern on said polarization compensator.
2. (original) A system for creating a patterned polarization compensator as in claim 1 further comprising:
 - (a1) applying a photo-alignment layer onto a substrate of said polarization compensator; and
 - (a2) applying a liquid crystal polymer layer onto said photo-alignment layer.
3. (original) A system for creating a patterned polarization compensator as in claim 2 wherein a spatially variant retardance pattern is formed into said liquid crystal polymer layer.
4. (original) A system for creating a patterned polarization compensator as in claim 3 wherein said liquid crystal polymer layer comprises liquid crystalline materials that include cross-linkable liquid crystalline monomers, oligomers, or pre-polymers, which are subsequently fixed by exposure to light in order to form said liquid crystal polymer layer.
5. (original) A system for creating a patterned polarization compensator as in claim 4 wherein said light used for fixing the liquid crystalline materials is UV light.
6. (original) A system for creating a patterned polarization compensator as in claim 4 wherein said light used for fixing the liquid crystalline materials is visible and wherein said liquid crystalline materials are augmented with visible wavelength sensitive photo-initiators.

7. (original) A system for creating a patterned polarization compensator according to claim 1 wherein said retardance characterization system comprises a visible light source that emits a light beam, at least one polarizer to control the polarization states of said light beam, a scanning mechanism to move said spatial light modulator and said light beam relative to each other, an optical detector for measuring changes in optical power, and a tunable compensator that both allows the orientation of said polarization states to be controlled and a retardance to be measured.

8. (original) A system for creating a patterned polarization compensator according to claim 7 wherein said visible light source of said retardance characterization system is a laser.

9. (original) A system for creating a patterned polarization compensator according to claim 7 wherein said light beam of said retardance characterization system is incident onto said spatial light modulator at non-normal incidence.

10. (original) A system for creating a patterned polarization compensator according to claim 7 wherein a mirror is used in place of said spatial light modulator as part of a calibration process.

11. (original) A system for creating a patterned polarization compensator according to claim 7 wherein said tunable compensator is a Soliel Babinet compensator or an ellipsometer.

12. (original) A system for creating a patterned polarization compensator according to claim 7 wherein said polarizers are Glan-Taylor prisms.

13. (original) A system for creating a patterned polarization compensator according to claim 7 wherein said scanning mechanism provides controlled motion of said spatial light modulator.

14. (original) A system for creating a patterned polarization compensator according to claim 1 wherein said compensator patterning system comprises a light source that emits a light beam, at least one polarizer to control the polarization states of said light beam, a scanning mechanism to move a substrate for said patterned compensator and said light beam relative to each

other, and a tunable compensator that both allows the orientation of said polarization states to be controlled in accordance with a desired retardance.

15. (original) A system for creating a patterned polarization compensator according to claim 14 wherein said light source of said compensator patterning system is a UV light source.

16. (original) A system for creating a patterned polarization compensator according to claim 14 wherein said light source of said compensator patterning system is a visible light source, and said photo-alignment layer is provided with visible wavelength sensitive photo-initiators.

17. (original) A system for creating a patterned polarization compensator according to claim 14 wherein scanning mechanism of said compensator patterning system provides controlled motion of said substrate

18. (original) A system for creating a patterned polarization compensator according to claim 14 wherein said light beam of said compensator patterning system is intensity modulated by a controlled rotation of at least one of said polarizers relative to another of said polarizers.

19. (original) A system for creating a patterned polarization compensator according to claim 1 wherein said spatial light modulator is a reflective liquid crystal device.

20. (original) A system for creating a patterned polarization compensator according to claim 1 wherein said spatially variant retardance patterned onto said compensator is created with said spatial light modulator operating at a mid-level between the on and off states of said modulator.

21. (original) A system for creating a patterned polarization compensator wherein according to claim 1 wherein said retardance characterization system comprises a visible light source that emits a light beam, one or more polarizers to control the polarization states of said light beam, a scanning mechanism to move said spatial light modulator and said light beam relative to each other, an adjustable wave plate for controlling the orientation of said polarization states, and a

polarimeter for measuring retardance.

22. (canceled.)

23. (canceled.)

24. (canceled.)

25. (canceled.)

26. (canceled.)

27. (canceled.)

28. (canceled.)

29. (canceled.)

30. (canceled.)